



REDCap YES3 Exporter External Module

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Learning Objectives

In today's session, you will learn:

- What is the Yale Study Support Suite (YES3)
- What is the YES3 Exporter
 - Enhancements
 - Features
- How does the YES3 Exporter work
 - What export layouts are available
- How you can get the YES3 Exporter



What is YES3?

- The Yale Study Support Suite (YES3) are software tools released to the REDCap consortium for worldwide use
- External Modules work within REDCap to expand its functionality
- Based on systems designed, deployed, and perfected over several decades to support research operations



Peter Charpentier presents YES3 at the International REDCap Conference 2022



What External Modules are part of the Suite?

- YES3 Exporter
- YES3 Dashboard
- YES3 BETR Data

Today's training will focus on the YES3 Exporter.

/ES3	B Ex	porte	er Main	Monthly FollowUp - Hard State Contraction	C A
FORMS	AND FIE	ELDS TO E	EXPORT (click 🕑 t	to edit) display: ●Export Items ○Expor	t Settings
1	Ľ	field	all events	start_intdate - Interview Date	Ŵ
2	Ľ	field	all events	start_time - Start Time of Interview	Ŵ
3	Ľ	field	all events	fall_home - [fall_timephrase] have you fallen? Note: A fall is any unintentional change in position coming to rest on the ground, floor, o	Ŵ
4	Ľ	field	all events	fall_injure - When you fell, did you injure yourself seriously enough to need medical attention? If multiple times, think about the worse fa	Û
5	Ľ	field	all events	fall_floor - When you fell, did you hit the floor?	Ŵ
6	Ľ	field	all events	fall_help - Did you need help from another person to get up from the floor?	i
7	Ľ	field	all events	fall_help_y - Who helped you get up from the floor? PROBE: Anyone else? Instructions: Record names, relationship, on Caregiver Key and [Ŵ
8	Ľ	field	all events	fall_help_n - Were you unable to get up from the floor or changed how you got up off the floor because it was too difficult?	Û
9	C	field	all events	fall_afraid - [fall_timephrase] have you been afraid of falling?	Û

BULK ADD: + Add one or more forms or fields to the export OR: (add all forms and events



Timestamp: 2025-03-19 14:54:19 User: jrt52 Export Logid: 27290 Export UUID: 90853296-eddb-4657-8478-63ab2147f74b 9 item(s), approx 9 export column(s)



Export specification loaded with permissions: export=true, design=true.

How many of you have used the built-in data export feature in REDCap?

Applications



The standard export option in REDCap has many useful features (filters, de-identifying, exporting to statistical packages).



REDCap Export Limitation

- Longitudinal projects are exported as <u>one row</u> <u>per event</u> resulting in multiple rows per record.
 - Those new or inexperienced with statistical software find it difficult to analyze longitudinal data.
 - Those familiar with statistical software often subset longitudinal data by events and combine them to one row per subject.

Is there a way to export the longitudinal data in a format that will make things easier?



What are the enhancements in the YES3 Exporter?



YES3 Exporter Enhancements & Features

- Flexible output spreadsheet layouts (horizontal, vertical, repeating form)
 - Longitudinal: One row per record all events!
 - Simplifies analysis with statistical software
- Improved performance
 - Faster: can handle large exports
- Enhanced data dictionary
 - Export-specific data dictionary: simplifies data sharing
 - Metadata and distributions: quick reporting and validation
- Can export directly to a host file system
- Light and dark themes





YES3 Exporter Enhancements & Features

- Security and Compliance
 - Conforms to REDCap's form-specific access and export rights
 - Audit trails and tracking
 - Detailed export history log
 - Automated email summary of export activities (optional)
- Export templates and specifications
 - Templates can be saved and re-used
 - Specifications can be rolled back and restored



Enhanced Feature: Export-Specific Data Dictionary

- YES3 Data Dictionary is specific to the data in your export
 - Includes metadata and data distribution summaries
 - Summary data includes count, range, #nonblank, and either a frequency table or mean & variance, as appropriate to field type

1						-	-		_								-	-			<u> </u>		-			
					redcap_f	redcap	redcap_	non_miss						sum_of_s		standard	formatte	formatted								
				redcap_fiel	orm_nam	_event	event_n	ing_coun	min_l	max_l		max_valu	sum_of_	quared_v		_deviatio	d_min_va	_max_valu	formatted	frequenc						
var_name	var_label	var_type valueset	origin	d_name	e	_id	ame	t	ength	ength	min_value	e	values	alues	mean	n	lue	e	_mean	y_table						
study_id	Study ID	TEXT	redcap	study_id	prescreer	n 0	baseline	0																		
redcap_data_access_grou	p REDCap Data	INTEGER	other					0																		
redcap_data_access_grou	p REDCap Data	TEXT	other					0																		
base_isi_date	Date of Inson	DATE	redcap	isi_date	insomnia	9817	baseline	81	10	10	1.614E+09	1.647E+09	1.32E+11	2.16E+20	1.6E+09	8331665	2/23/2021	3/14/2022	9/29/2021							
base_isi1	1. Difficulty f	NOMINAL [{"value"	: redcap	isi1	insomnia	9817	baseline	81	1	1										[{"value":	0,"count"	:28},{"valu	e":1,"count	t":18},{"va	lue":2,"cou	unt":19},{"
base_isi2	2. Difficulty s	NOMINAL [{"value"	: redcap	isi2	insomnia	9817	baseline	81	1	1										[{"value":	0,"count"	':27},{"valu	e":1,"coun	t":17},{"va	lue":2,"cou	unt":20},{"
base_isi3	3. Problems v	NOMINAL [{"value"	: redcap	isi3	insomnia	9817	baseline	81	1	1										[{"value":	0,"count"	':43},{"valu	e":1,"coun	t":13},{"va	lue":2,"cou	unt":9},{"v
base_isi4	4. How SATIS	NOMINAL [{"value"	: redcap	isi4	insomnia	9817	baseline	81	1	1										[{"value":	0,"count"	::11},{"valu	e":1,"coun	t":16},{"va	lue":2,"cou	unt":21},{"
base_isi5	5. How NOTIO	NOMINAL [{"value"	: redcap	isi5	insomnia	9817	baseline	81	1	1										[{"value":	0,"count"	':39},{"valu	e":1,"coun	t":18},{"va	lue":2,"cou	unt":13},{"
base_isi6	6. How WORF	NOMINAL [{"value"	: redcap	isi6	insomnia	9817	baseline	81	1	1										[{"value":	0,"count"	:33},{"valu	e":1,"coun	t":25},{"va	lue":2,"cou	unt":10},{"
base_isi7	7. To what ex	NOMINAL [{"value"	: redcap	isi7	insomnia	9817	baseline	81	1	1										[{"value":	0,"count"	:27},{"valu	e":1,"coun	t":19},{"va	lue":2,"cou	unt":17},{"
base_isi_symptom_score	Insomnia syn	FLOAT	redcap	isi_symptor	insomnia	9817	baseline	81	1	2	0	12	310	1952	3.82716	3.093502										
base_isi_impact_score	Insomnia imp	FLOAT	redcap	isi_impact_	insomnia	9817	baseline	81	1	2	0	16	468	4446	5.77778	4.666369										
base_isi_score	Total Score	FLOAT	redcap	isi_score	insomnia	9817	baseline	81	1	2	0	28	778	11684	9.60494	7.255479										
base_isi_score_category	Total Score C	FLOAT	redcap	isi_score_ca	insomnia	9817	baseline	81	1	1	1	4	153	365	1.88889	0.974679										
base_insomnia_severity_	ir Complete?	NOMINAL [{"value"	: redcap	insomnia_s	insomnia	9817	baseline	82	1	1										[{"value":	0,"count"	::1},{"value	":2,"count"	:81}]		

For date/time field type, summaries of both date values and formatted values are included in the data dictionary



Enhanced Feature: YES3 Exporter Log

- Audit trails logs all data exports activity
- Detailed information using the inspect
 icon

YES	53 Expo	rter Logs			
test	horizontal	~	all users	∽ from m	m / dd / yyyy to mm / dd / yyyy 6 log records
0	log id	timestamp	user	message	destination
0	2035	2022-08-22 13:00:	04	export files written	download
0	2036	2022-08-22 13:00:	04	export zip downloade	d download
0	2038	2022-08-22 13:02:	10	export files written	download
0	2039	2022-08-22 13:02:	10	export zip downloade	d download
0	2041	2022-08-22 13:03:	43	export files written	download
0	2042	2022-08-22 13:03:	43	export zip downloade	d download



R 3

YES3 Export Log Record

Log ID	2041				
Project ID	588				
Export Name	test horizontal				
Export UUID	423f24aa-b76a-4601-8ebf-fb612743a324				
Time Stamp	2022-08-22 13:03:43				
User					
Message	export files written				
Destination	download				
Log Entry Type	yes3-export-log				
Export filename	/tmp/ys3a1pLLu				
Data Dictionary filena	me /tmp/ys3snhlAt				
Bytes written	3673				
Cells written	1054				
Rows	82				
Columns	16				
Export specification	inspect				

INSPECT ICON 📀

REDCap@Yale

YES3 Export Specification

log_id message timestamp removed export uuid export_name export username export_layout h export selection 2 export criterion field enroll export_criterion_event 9817 export criterion value 1 export target export_max_label_length export_max_text_length export_inoffensive_text 0 export_remove_phi 0 export remove freetext 0 export_remove_largetext 0 export remove dates 0 export shift dates 0 export hash recordid 0 /mnt/validation/clouds export target folder export_items form insomnia severity index all event

2040 yes3-export-specification 2022-08-22 13:03:35 0 423f24aa-b76a-4601-8ebf-fb612743a324 test horizontal

Questions?

<u>Next</u>: How do I get it?



How do I install the YES3 Exporter so I can use it on my REDCap project?

Email your REDCap Administrator.

REDCap at Yale University

Send us an email at <u>redcap@yale.edu</u>. We will enable the module in your project. There are resources to help you.



How does it work?



YES3 Exporter Components

- Manage Configurations
- YES3 Exporter Main
 - View and download exports
 - Set up data export configurations
- YES3 Exporter Event Prefixes
 - Modify auto-generated prefixes to distinguish different events
- YES3 Exporter Logs
 - Audit trail of each export that has been created and downloaded





YES3 Exporter Components Manage: Configuration of Module

- **Set Up:** Step #1
 - Ask an Administrator to enable the Exporter on your project
- Set Up: Step #2
 - Configure the Exporter
 - Must have project design and setup rights





YES3 Exporter Components Manage: Export Configurations

- Manage configurations allows you to:
 - Enable daily email notifications
 - Permit exports to be saved to a host file system*
 - Set retention for backups

DAILY EMAIL NOTIFICATIONS You may elect to receive daily summaries of YES3 Exporter actions by email.								
Enable email notifications:	● No○ Yes							
HOST FILE SYSTEM EXPORTS								
YES3 Exporter can export to the host file system, n.b. to automounts pointing to secure institutional file shares. This will require services from your REDCap host system administrator, and the blessing of your Information Security Officer.								
Enable export to host file system:	● No ○ Yes							
BACKUP RETENTION								
By default, 20 generations of each export specification are retained, and can be restored using the 'undo' feature. You may change this number, or elect to retain all generations.								





* Additional approvals required

YES3 Exporter Components Event Prefixes

- Set up: Step #3,
 - If you are using a <u>horizontal</u> layout, review and edit the auto-generated prefixes

YES3 Expo	D?C	Sec.						
	Event prefixes							
	For horizontal export layouts the YES3 Expor Keep the prefixes as short as you can manag	•						
	Click <i>here</i> to restore your event prefixes to their default values.							
	Event							
	screening_inhosp_arm_1	scrn	_					
	enrollment_home_vi_arm_1	hm						
	m1_fu_visit_arm_1	m1						
	m2_fu_visit_arm_1	m2						
	m3_fu_visit_arm_1	m3						



YES3 Exporter Components Main: Create Exports

1. Add a new export, name it, and pick a layout format

New Export		X
Please provide a name and Note that while you can change Export NAME enter an expo	d and layout for the export to be ac the name later, you cannot change the la rt name	dded. ayout once the export has been created.
O Horizontal (lo Export LAYOUT O Vertical (one O Repeating Fo	ongitudinal projects: one row per record) row per record+event) orm (one row per record+event+instance)	save cancel



Export Layout #1 - Horizontal

• Longitudinal projects: one row per record

Example

Monthly follow up form for m1, m2 and m3 events:

Inst	Instrument: Monthly Follow Up Status (monthly_follow_up_status)								
s de la constante de la consta	176	[mthly_fu_date]	Date	text (date_mdy), Required					
${\bf T} \!$									
	177	[mthly_fu_complete]	Monthly Follow Up Completed	radio, Required					
$\overline{\boldsymbol{x}}$				1 Yes					
				0 No					

Event prefixes added to field names:

study_id	m1_mthly_fu_date	m1_mthly_fu_complete	m2_mthly_fu_date	m2_mthly_fu_complete	m3_mthly_fu_date	m3_mthly_fu_complete
17	5/14/2021	1	6/9/2021	1	7/7/2021	1
18	3/30/2021	1	4/22/2021	1	5/20/2021	0
21	3/31/2021	1	4/28/2021	1	5/26/2021	1
23	4/16/2021	1	5/14/2021	1	6/9/2021	1
27	5/17/2021	1	5/14/2021	0	7/13/2021	0
28	4/29/2021	1	5/27/2021	1		
35	6/15/2021	1	7/13/2021	1	8/10/2021	1



Export Layout #2 - Vertical

- One row per record + event
- The REDCap event id is included in the data export file

Example

1	study_id	redcap_event_id	redcap_event_name	mthly_fu_date	mthly_fu_complete
2	17	9821	m1_arm_1	5/14/2021	1
3	17	9825	m2_arm_1	6/9/2021	1
4	17	9829	m3_arm_1	7/7/2021	1
5	17	9833	m4_arm_1	8/4/2021	1
6	17	9837	m5_arm_1	9/1/2021	1
7	17	9841	m6_arm_1	9/29/2021	1
8	18	9821	m1_arm_1	3/30/2021	1
9	18	9825	m2_arm_1	4/22/2021	1
10	18	9829	m3_arm_1	5/20/2021	0
11	18	9833	m4_arm_1	6/17/2021	0
12	18	9837	m5_arm_1		
13	18	9841	m6_arm_1		
14	21	9821	m1_arm_1	3/31/2021	1
15	21	9825	m2_arm_1	4/28/2021	1
16	21	9829	m3_arm_1	5/26/2021	1
17	21	9833	m4_arm_1	6/23/2021	0
18	21	9837	m5_arm_1	7/21/2021	1
19	21	9841	m6_arm_1	10/1/2021	1



Export Layout #3 – Repeating Form

- One row per record + event + instance
- Only one repeating form can be defined in the export. You cannot export repeating events.

• Example

1	study_id	redcap_event_id	redcap_event_name	redcap_repeat_instance	call_date	wks_frm_mat_start
2	28	9817	baseline_arm_1	1	10/22/2021	31.6
3	35	9817	baseline_arm_1	1	4/7/2021	3.3
4	35	9817	baseline_arm_1	2	4/13/2021	4.1
5	35	9817	baseline_arm_1	3	4/14/2021	4.3
6	35	9817	baseline_arm_1	4	4/27/2021	6.1
7	35	9817	baseline_arm_1	5	4/27/2021	6.1
8	35	9817	baseline_arm_1	6	5/17/2021	9
9	36	9817	baseline_arm_1	1	4/7/2021	1.1
10	36	9817	baseline_arm_1	2	4/7/2021	1.1
11	36	9817	baseline_arm_1	3	4/13/2021	2
12	36	9817	baseline_arm_1	4	4/27/2021	4
13	36	9817	baseline_arm_1	5	5/17/2021	6.9
14	36	9817	baseline_arm_1	6	5/17/2021	6.9
15	36	9817	baseline_arm_1	7	5/19/2021	7.1
16	36	9817	baseline_arm_1	8	5/23/2021	7.7

Special Note - Checkbox Field Type

- Data from checkbox fields are exported with the checked-off options combined in a single column
- This prevents innumerable columns in horizontal exports

Example:

	study_id	base_date_lec	base_lec1			
	41	4/26/2021	2,3			
[lec1]	46	4/30/2021	1,2,3	ıt O	checkbox, Re	quired
	61	6/10/2021	1,2,3	ľ	1 lec11	Happened to me
	70	6/22/2021	3	rst	2 lec12	Witnessed it
	80	7/7/2021	1,2,3	-ur	3 lec13	Part of my job
	88	10/5/2021	6		5 lec15	Not sure
	91	10/4/2021	1		6 lec16	Doesn't apply
	96	7/12/2021	2			
	107	7/19/2021	1,3			
	109	7/30/2021	1,2,3			



YES3 Exporter Main Create an Export

2. Set your export settings

EXPORT SETTINGS		display: 🔿 Export Items 🔵 Export Settings		
Export name:	Monthly FollowUp Status			
Export layout:	Horizontal			
Options for selecting records to export ③				
Include:	All records Oselected r	All records Oselected records		
Options for data compliance (de-identified and coded datasets)				
□ Remove tagged identifiers □ Remove date/time fields	□ Remove all freetext fields ☑ Remove note/paragraph fields	Coded (shifted) dates Coded (hashed) record id values		
Options for conditioning exported values				
Sanitize exported text values by removing unprintable characters and HTML tags.				
Maximum field label length:	max #characters			
Maximum text value length:	max #characters			



YES3 Exporter Main Create an Export

3. Select your export items





Instructions and Resources: Help Menu

• Click ? to bring up the Help Menu

YES3 Exporter N	Main Monthly FollowUp State	us 🗸 🛏 new export	+ 🔁 🖒 🔽 🖿 🕜 🏶 🤇 🏂				
EXPORT SETTINGS			display: 🔿 Export Items 🌑 Export Settings				
Export name:	Monthly FollowUp Status						
Export layout:	Horizontal						
Options for selecting records to export ③							
Include:	● All records ○ Selected	records					
Options for data compliance (de-identified and coded datasets)							
Remove tagged identifiers Remove all freetext fields Image: Compare the second se		☐ Coded (shifted) dates ☐ Coded (hashed) record id values					
Options for conditioning exported values							
Sanitize exported text values by removing unprintable characters and HTML tags.							
Maximum field label length:	max #characters						
Maximum text value length:	max #characters						



Instructions and Resources: Exporter User Guide

- Purpose: Step-by-step instructions including a How-To Guide and Quick Start Tutorial
- Audience: for users creating exports

The YES3 Exporter

User Guide, Technical Guide, Change Log and more

User Guide

home

REDCap External Module Version 1.0.0, August 2022

Introduction

The YES3 Exporter external module compliments REDCap's reports and data export tool by adding functionality to support integration with statistical software and datamarts.



Instructions and Resources: Technical Guide

- Purpose: Explains how the data is processed
- Audience: People writing programs to process files (statisticians, data managers, programmers)

The YES3 Exporter

User Guide, Technical Guide, Change Log and more

Technical Guide

YES3 Exporter Version 1.0.0, August 2022

Intended Audience

This guide is intended for individuals who will be writing programs to process files generated by the YES3 Exporter. These include data managers and statistical programmers writing programs to import YES3 Exporter data into statistical systems such as SAS and R, as well as application developers seeking to integrate the YES3 Exporter into datamart generation and validation workflows.



Thank You!



The YES3 Exporter was funded by:

Yale Claude D. Pepper Older Americans Independence Center (OAIC) grant Development Project Award for the Operations Core, 3P30AG021342.



Extra Slides



What is YES3?

- Together, YES3 External Modules (EMs) can be used to help researchers:
 - Share information and reports
 - Improve data quality
 - Build datamarts
 - Coordinate workflow and assignments
 - Automate tasks
 - Track milestones
 - Monitor study progress



Web Portal External Module Data callection form:

		All Sites
DCARE enrollment day number	1095 (112% of period)	1095 (112% of period)
Enrollment progress	116 / 538 (21.6%) 🙁	2176/2150(101.2%)
PCP referrals	583	9770
First PCP referral		
Most recent PCP referral		
Recruitment letters mailed	249	2444
First mailing		
Most recent mailing	09-10-2021	
Opt-out postcards returned		
Pre-screen clinic visits		540
First clinic visit		03-02-2018
Most recent clinic visit	06-19-2019	
Total pre-screen contacts	366	10972
Pre-screen optouts		
Pre-screen ineligibles		
Eligible for pre-baseline screen		
Telephone screens	58	4090
First telephone screen	07-22-2019	
Most recent telephone screen		
Clinic screens	189	130
	03-04-2019	
Most recent clinic screen	02-18-2021	
Total screens	247	4220
Eligible for baseline		
Consented to baseline		
Baseline interviews attempted		2837
First baseline interview	06-18-2019	05-28-2019
Most recent baseline interview		
Consented to study participation	134 (99% of attempted)	2176 (77% of attempte
Enrolled participants	116 (87% of interv(ewed)	2176 (100% of Intervie

Dashboard External Module



When should I use the YES3 Exporter?

Project / Function	REDCap Export	YES3 Exporter
Classic Project	\checkmark	\checkmark
Longitudinal Project – Vertical export format	\checkmark	\checkmark
Longitudinal Project – Horizontal export format		\checkmark
Single repeating form	\checkmark	\checkmark
Multiple repeating forms	\checkmark	
Custom data dictionary with data distributions (Classic or longitudinal)		\checkmark
Filter, sort, delete exports	\checkmark	

